GENERAL FIELD SAFETY FOR ALL EMPLOYEES

Purpose

This Meteorology and Air Quality Group (MAQ) document provides information to all group employees who will be working outdoors or driving regularly to other work sites. Periodic retraining to this document may be required by the group leader or a project leader, especially when information is added or updated. Certain procedures require periodic refresher review of this document.

Scope

This procedure describes the hazards associated with being outdoors in all types of weather, being around mechanical equipment, working near edges of rooftops or cliffs, and driving to other work sites.

In this procedure

This procedure addresses the following major topics:

Hazard Control Plan

The hazard evaluation associated with this work is documented in Attachments 1 and 2: Initial risk = **medium**. Residual risk = **low**. Work permits required: none.
First authorization review date is one year from group leader signature below; subsequent authorizations are on file in group office.

Signatures

Prepared by: Terry Morgan Terry Morgan, QA Officer	Date: 2/19/04
Work authorized by: Jean M Dewart Jean Dewart, MAQ Group Leader	Date: 2/19/04

General information about this document

Attachments

This document has the following attachments:

Number	Attachment Title	No. of pages
1	Hazard Control Plan for Field Work	3
2	Hazard Control Plan for Driving	3

History of revision

This table lists the revision history and effective dates of this document.

Revision	Date	Description Of Changes
0	1996	New document, changed several times through November 2003.
1	12/11/03	Revised into controlled document with office work aspects moved to separate document.
2	2/24/04	Added paragraph on checking vehicle condition and notifying supervisors of allergic reactions, expanded information on heat and cold symptoms, and HCPs reformatted.

Who requires training to this procedure?

The following personnel require training to this document:

- All group members who perform work outdoors or who frequently travel to other sites

Annual retraining is required.

Personnel previously trained to revision 0 do not require re-training to this revision.

Training method

The training method for this document is "**self-study**" (reading) and is documented in accordance with the procedure for training (MAQ-024).

Prerequisites

In addition to training to this document, the following training is also required:

- First Aid
- Cardiopulmonary Resuscitation (CPR)
- Defensive driving course (PS-13) (recommended for those who must regularly drive as part of their job; supervisor's discretion)

Field work

Working alone policy

The group prefers two people to travel together to perform any field work (e.g., collecting field samples). However, it is acceptable for one person to perform such field work unless required by the specific procedure (see the specific procedure for that work). In either case, ensure you have a **cellular phone** and **pager** with you. (Remember that Lab-owned phones must have the batteries removed in security areas – thus the requirement for a pager also.)

Vehicle preparation

Ensure the vehicle you are using is properly equipped and in good condition (contact the vehicle coordinator if problems are found). Ensure it contains:

- First aid kit
- Fire extinguisher
- Water and possibly food, depending on length and distance of trip

Allergies

If you have a known allergy or potential allergic reaction to certain plants or animals (e.g., reaction to bee stings), notify your supervisor and the team leader.

Tripping hazards, uneven ground

Be aware of uneven ground and natural trip hazards while walking. Be prepared for unstable ground around gopher holes. Wear appropriate footwear (provided by the lab when needed) for the field. Many fieldwork activities require steel-toed shoes – consult the procedure and/or hazard control plan.

Post-fire hazards

After the Cerro Grande fire, work in burned areas brings special hazards:

- Falling trees or limbs that have been burned. Be on high alert when the wind kicks up, which can happen very suddenly in this area.
- Downed logs may be hollow. Use care when walking in burned-out areas.
- Damaged sites around the Lab may present unexpected hazards. Be on alert for unexpected hazards. Follow all facility-specific instructions.
- Animals may act differently. The habits of large and small animals will be disrupted, their food sources drastically changed, and they will be found in new places. Watch especially for coyotes, bears, mountain lions, and rattlesnakes. Read the chapter *Large Animals* below.

Field work, continued

Floods

After the Cerro Grande fire, the watershed upstream of Lab property will not retain much precipitation. The potential for flash floods is great. Check meteorological data (on the web and by looking outside) for current and projected conditions and, when headed for low areas, watch and listen for signs of rain in the area and even several miles upstream. If there are rain indications, stay out of low areas. During rainy season, try to conduct field work in low areas in early morning hours.

In case of flood: Run to high ground. Abandon vehicle if necessary. DO NOT attempt to drive across running water – less than a foot of rushing water may be sufficient to push a vehicle.

Checking in

It is required that someone in the group know where personnel are working. When departing for field work (even with more than one person), do one of the following:

- Notify the group office or a responsible individual in the group who will be at work past your planned return time.
- Use the group sign-out board and ensure there is a responsible individual who will follow up when you are past your planned return time.

Indicate the general area you will be in and ensure the office has your correct cell phone numbers and pager numbers. After leaving the area, notify the group office of your return.

When leaving Los Alamos County, you are considered to be on travel. Arrange for periodic check-in via cell phone to a responsible individual in the group who will be at work past your planned return time.

Falls from cliff edges

Lab policy requires fall protection when work must be performed within 6 feet of a drop of more than 6 feet. If doing field work near cliff edges, stay back at least six feet.

Sun exposure

Use sunscreen. Locals know the sun at this elevation can quickly cause bad sunburns – in as little as ½ hour for sensitive individuals. Hats are most effective for protecting the head and can also keep you cooler.

Field work, continued

Heat

Take plenty of water in the summer. Be aware of the dangers of heat:

- Heat cramps are caused by heavy sweating which can deplete the body of salt. They may be accompanied by hot, moist skin and a slightly elevated body temperature. The cramps in the arms, legs or stomach can occur while you are working, or when you are relaxing after your shift. Heat cramps are a danger signal of heat stress.
    - Treat heat cramps by moving into the shade and loosening clothing. Drink a lightly salted liquid. If cramps persist, seek medical help.
- Heat exhaustion may be characterized by heavy sweating, strong thirst, cool and moist skin, a quick pulse, rapid breathing, nausea, a feeling of fatigue and possibly fainting. Heat exhaustion indicates the body's mechanism for controlling heat is beginning to break down.
    - For heat exhaustion, cool the victim as fast as possible, fanning and pouring water on the victim if necessary. Have the victim drink water and call immediately for medical help.
- Heat stroke is a serious medical emergency that can quickly proceed to unconsciousness and death. It occurs when the body loses too much salt and water so that sweating stops. At that point, the body's temperature control mechanism fails and body temperature increases rapidly. Symptoms include hot, red, dry skin, a quick pulse, difficulty breathing, dizziness, confusion, strange behavior, weakness, and nausea. Heat stroke can quickly progress to convulsions, coma, loss of pulse and an extreme body temperature. Death can follow rapidly.
    - For heat stroke, immediately begin cooling the victim to lower the body temperature as fast as possible. Immerse him in water or use ice to cool his body. Call for an ambulance immediately.

Cold

In the winter, wear proper clothing and boots to avoid getting chilled when doing your work. Have sufficient warm supplies to allow you to wait for rescue, if necessary, in the cold in an inoperable vehicle. Know the warning signs of hypothermia and frostbite – get medical attention immediately:

- Hypothermia: shivering and chills, or unable to think or speak clearly. You may lose your coordination and quite possibly your consciousness.
- Frostbite: numbness and a white and waxy appearance to your skin.

Your supervisor is required to provide adequate cold-weather clothing, boots, or gloves. Request them when needed for your work.

Field work, continued

Minor scrapes

As mentioned earlier, ANY injury incurred while on the job requires a visit to the Occupational Medicine Group. Even a minor scrape could require a tetanus booster shot – ensure your tetanus is current.

PPE

Care of PPE

It is a requirement that employees be provided with any needed personal protective equipment (PPE) for a job and that they are trained in its use. This includes eye protection, gloves, hardhats, hearing protection, and footwear.

- Keep all PPE in a place where it will not be degraded or damaged.
- Maintain PPE in accordance with manufacturer's requirements.
- Keep gloves and eyewear in a sanitary place.
- Do not share your PPE with another employee.
- Replace immediately any PPE that is damaged or degraded.

Use of PPE

You must use PPE when required by a procedure, an HCP, or postings.

If you do not understand the use of PPE or how to care for it, ask your supervisor.

Inspect the PPE before each use. If damaged, replace it.

Hearing protection

Hearing protection will be provided at or above the action level of 82 dBA. Protect your hearing: if you suspect the levels are high, ask your supervisor to request a noise level measurement.

Electrical and mechanical safety

Don't do work you consider unsafe

DO NOT perform work under conditions you consider unsafe. Before beginning any work, review safety needs and requirements, identify hazards, and develop hazard mitigation measures. Be aware that facility configurations and hazards may change between visits.

Working alone with machinery

Certain types of work require two people, one of whom must understand the tasks, not be exposed to the risk, and can render assistance if needed. See LIR 402-150-01 for other specific requirements about working alone. Some of the types of work that require two people are:

- working with any type of powered machinery that could potentially cause a massive injury
- working on certain types of hazardous electrical energized equipment
- entry into enclosed spaces or limited egress spaces
- when a worker could fall to a lower level and become trapped or locked in
- when hazardous, toxic, or narcotic materials are used
- when fire could develop or spread rapidly.

Energized electrical equipment

You are not allowed to work on any equipment containing exposed hazardous voltages and amperages unless it can be unplugged or de-energized. Energized electrical work requires special training and task evaluations (see LIR402-600-01, Electrical Safety).

Rotating machinery and electrical equipment

Some work is performed in the vicinity of fans, motors, and other facility equipment. Do not work in the vicinity of exposed conductors or if guards are not in place on operating equipment.

Radiological hazards

Stack sampling locations are often radiologically controlled. Be sure to comply with all facility-specific PPE requirements before entering controlled areas.

Electrical and mechanical safety, continued

Work on roofs and scaffolding

Work for some projects will take place on roofs and/or scaffolding. **Fall protection equipment must be used if the performance of the work requires personnel to be within 6 feet of the edge of a 6 foot or greater drop.** Additional safety precautions and equipment must be considered, and when appropriate, used to minimize the risks of injury resulting from falling equipment, lightning strikes, exposure, and other potential hazards. Safety precautions to be considered related to working at heights include:

- Use of hard-hats
- Observing safe ladder practices
- Delaying work because of dangerous weather conditions

<u>DO NOT</u> work on roofs and/or outdoor scaffolding during lightning storms or when lightning storms are in the area.

Working in a facility

Under the Lab's Facility Management Model, work control is the responsibility of the Facility Manager. Obtain approval from facility management before beginning work within a facility**.** Assure you have completed all facility-specific training requirements. Most prerequisite training requirements are given on page 2 of all MAQ procedures.

Lightning Hazards

Background

The weather before a thunderstorm is often hot and sultry. In the mid-afternoon or sometimes earlier, huge anvil-shaped clouds of cumulonimbus develop rapidly and the sky darkens to threatening blue-black color.

The time of formation will vary between one and four hours depending on how vigorous is the convectional uplift. Thunder can often be heard and lightning seen well before the storm arrives, and increases in frequency and intensity as the storm approaches. HOWEVER, be aware that a storm might be developing directly overhead and there may be no warning from nearby lightning.

Storms will move horizontally at speeds between 12 and 30 miles per hour and consequently will be impossible to outdistance on foot.

How far away is the lightning?

When in the field and a storm is approaching, time the interval between lightning and the thunder by counting the seconds.

To obtain the distance in miles, divide by five; to obtain the distance in kilometers, divide by three.

When lightning is close

Follow the "30-30 rule": When lightning is determined to be less than 30 seconds (six miles) away, seek shelter, for at least 30 minutes after the last thunder is heard, in one of the following locations, given in order of preference:

- steel-framed building
- enclosed vehicle with a steel roof
- low ground away from solitary trees and below and away from promontories.

Individuals should disperse to reduce the possibility of multiple casualties.

Place any metal objects away from your position.

On open ground, adopt a crouched position with the hands off the ground and the feet close together on some dry insulation such as sleeping pad, rope, or pack (not metal-framed).
Stay away from streams and fences. Don't use a telephone during a lightning storm.

Computers

To avoid damage from power surges, turn off office computers when a lightning storm is in the area.

Poisonous Snakes, Spiders, and Insects

Snakes background

There are four kinds of poisonous snakes found in the United States: rattlesnakes, copperheads, water moccasins, and coral snakes.

Rattlesnakes, copperheads, and water moccasins belong to the family of pit vipers (Crotinae).

Only rattlesnakes and coral snakes are found in New Mexico and only rattlesnakes are found in Los Alamos County.

Pit vipers

Pit vipers have a pit between the eye and the nostril on each side of the head, elliptical pupils, and one to six fangs but usually two well-developed fangs, and one row of plates beneath the tail.

The venom of these snakes affects the circulatory system. In the western states, the rattlesnake is the only type of pit viper.

There are over 13 species of rattlesnake, but only three are commonly found in New Mexico: Western diamondback, Prairie, and Massasauga (southern NM).

Symptoms of pit viper bites

Pit viper bites are characterized by:

- extreme pain
- rapid swelling
- one or more puncture wounds created by the fangs

Avoiding snakebites

Snakebites usually occur to the hands and feet. Wear field boots and avoid placing hands and feet where you cannot see. Rattlesnakes may be found anywhere we work, even around the offices in White Rock. It is best to avoid the snake and let it go on its way. However, in an area where others may be endangered if they encounter a poisonous snake, call the ecology group office and ask for someone to come relocate the snake.

Poisonous Snakes, Spiders, and Insects, continued

Treatment of snakebites

Keep the victim from moving around (reduce the circulation of blood through the bite area and victim's body)

Keep the victim as calm as possible and preferably in a lying position.

Immobilize the bitten extremity and keep it at or below heart level.

Transport the victim to a hospital as soon as safely possible (preferably within two hours). Report all bites to the Occupational Medicine group.

Spider bites

The bites of some spiders, such as the black widow and the brown recluse, are particularly dangerous because they affect your whole body. Bites from both of these spiders can cause fever, nausea, and pain in addition to the skin reactions at the site of the bite.

Look for spider webs and other signs of spider activity before reaching into dark corners.

Treatment of spider bites

If you believe you have been bitten by one of these dangerous spiders, see your doctor immediately. Before you do, follow these guidelines:

1. Immobilize the bitten arm or leg to limit movement.
2. Apply a cloth dampened with cold water or lined with ice to the bite.
3. Keep the arm or leg dangling down.
4. Seek emergency medical assistance.
5. Give the health care provider as accurate a description of the spider as possible.

Insect bites

Bee stings and other insect bites can turn deadly if there is an allergic reaction or if the bite becomes infected. Take all bites seriously and have them checked immediately if swelling occurs.

Large Animals

Overview of large animals in New Mexico

Large predators (animals that eat other animals), including mountain lions, black bears, bobcats, and coyotes, are found throughout most of New Mexico. These large, powerful predators have always lived here, feeding on plentiful prey species and playing an important role in the ecosystem.

Large animals such as deer and elk can also pose a significant risk if confronted.

What to do if you live in large animal country

In large animal country, make sure that you don't contribute to their becoming a problem. To reduce the risk of problems on or near your property, follow these simple precautions.

- Closely supervise children whenever they are playing outdoors. Make sure children are home before dusk and are not outside before dawn (those are the times that large predators are most active).
- Use landscaping practices that eliminate hiding cover for predators. You do not have to remove all vegetation but remove enough so you can detect a predator if it comes into your yard. Make it difficult for them to approach unseen.
- Install outside lighting, preferably with motion sensors. Light areas where you walk so you can see a predator if one were present.
- Close off open spaces below porches and decks.
- Planting nonnative shrubs and plants that prey species often prefer to eat encourages wildlife to come onto your property. Predators follow prey. DO NOT FEED ANY WILDLIFE!
- Roaming pets are easy prey. Bring pets in at night. If they must stay out, then confine them to a kennel with a secure roof. Do not feed pets outside where the pets or the food can attract predators or other small animals (like raccoons) which predators prey upon.
- Store all garbage securely. Most predators in residential areas within their habitat do not cause any damage. If a predator doesn't find abundant food, it will move on.

Large animals, continued

What to do if you meet a large animal

There are no definite rules about what to do if you meet a large predator or other large animal. In most cases, the animal will detect you first and will leave the area. Attacks are rare compared to the number of encounters. However, if you do run into one before it has had time to leave an area, here are some suggestions. Remember that every situation is different with respect to the animal, the terrain, the people, and their activity.

- **STAY CALM**. If you see a predator that hasn't seen you, calmly leave the area. As you move away, talk aloud to let the animal discover your presence.
- **STOP**. Back away slowly while facing the predator if you can do so safely, while avoiding direct eye contact. Don't run as this might stimulate its instinct to chase and attack. Give it plenty of room to escape.
- **DO ALL YOU CAN TO APPEAR LARGER**. Raise your arms and open your jacket if you are wearing one. If you have small children with you, protect them by picking them up so they don't panic and run.
- **NEVER APPROACH**. Wild animals are unpredictable; however, they will usually avoid a confrontation unless pushed into one.
- **WATCH FOR YOUNG**. Coming between a female and her young can be dangerous. If a young animal is nearby, try to move away from it, being alert for others that might be around.
- **CONVINCE IT YOU'RE NOT PREY**. If the animal approaches closer or behaves aggressively, arm yourself with a large stick, throw rocks or sticks at it, speak louder and more firmly to it. Convince the predator that you are dominant and a danger to it.
- **FIGHT BACK**. If the predator does attack, fight back. Use any possible objects (rocks, sticks, backpacks, caps, jackets and even your bare hands) as a weapon.

Prevention of Plague and Hantavirus Infection

Background

Plague is a wild rodent disease in the western states, although domestic rats may be rarely involved. A complex rodent/flea cycle enables the plague bacteria to exist in certain resistant species of rodents, only to erupt periodically in other susceptible species. Field mice serve as reservoirs for the disease and are relatively resistant to its effects. Plague-infected fleas spread the bacteria to less-resistant species such as rock squirrels, chipmunks, and prairie dogs. These animals usually die from the disease in a few days and thus release their own plague-infected fleas to seek new hosts.

Hantavirus can cause a potentially fatal respiratory disease. The virus is carried in the urine, saliva, and feces of rodents, particularly deer mice. The greatest risk of exposure is from breathing an aerosol containing the virus.

Avoiding exposure

When in the field, leave sick or dead animals and their feces alone. Avoid animal burrows, rock outcrops, and rock walls where infected rodent fleas may be hiding.

Repellent may be used on the legs to reduce the chance of being bitten by fleas.

Prevent exposure to hantavirus by observing the following precautions:

- Avoid areas where rodents frequent, especially nests.
- Do not disturb such areas by brushing, sweeping, or vacuuming.
- Wear rubber gloves when handling any rodent materials.
- Wash reusable gloves with disinfectant and then with soap and water.
- Disinfect any utensils that were used.

Employees are strongly encouraged to avoid contact with rodents and rodent materials. Employees should call FWO (7-6156) for proper disinfection, clean-up, and rodent-proofing of infested areas.

Prevention of Plague and Hantavirus Infection, continued

Symptoms of plague

If the following symptoms of plague appear, seek medical attention:

- a high fever, general malaise, vomiting, diarrhea, and sometimes a headache.

Muscles in the arm, legs, or back may become sore. A swollen lymph gland, or bubo, may or may not appear nearest the site of infection after a couple of days.

Very few people die from plague infections; in most deaths, delay in seeking medical attention contributed.

Symptoms of hantavirus

If the following symptoms of hantavirus infection appear and you think you were exposed to hantavirus within the past 5 weeks, seek medical attention right away:

- cold-like symptoms that are accompanied by a high fever.
- respiratory difficulties.

Driving

Operating motor vehicles

Statistically, driving is the most dangerous activity performed at the Lab. All employees who operate Government **and/or private** vehicles (*motorcycles may NOT be used*) for official laboratory business must operate these competently, safely, and in compliance with federal, state, and local rules, regulations, and laws.

Employees who operate government-owned, private, or leased motor vehicles must meet the following qualifications:

- Must have a US valid motor vehicle driver's license.
- Be free of physical or mental impairment that interferes with or limits safe control and operation of a motor vehicle in the performance of driving duties.

Motor vehicle accidents are the leading cause of on-the-job fatalities in the United States, accounting for 44% of all industrial fatalities. Using seat belts are effective in preventing fatalities and injuries.

Trip logs

It is a LANL requirement to complete trip logs for every use of the vehicle. The log sheet is usually kept in the vehicle and a separate sign-out sheet (for reserving the vehicle) is normally kept where the keys are kept.

Seat belts

Ya gotta use them in any vehicle, even privately-owned and even as a passenger and even in the rear seats, when on official business.

Parking

LANL has its own rules and enforcement actions for parking. Read AM 617 for parking rules and associated penalties for parking violations.

Reporting accidents

All accidents that involve a government vehicle or private vehicle that is used for official business, regardless of the extent of damage or injury, must be reported to your supervisor. Immediately call 911 if there are any injuries or spills. Follow the steps on the checklist kept in the vehicle.

Driving, continued

Driver distractions

Be aware of the ease with which you can be distracted by the radio, ventilation controls, other people, things outside the vehicle, and the ubiquitous cell phone. Keep your attention outside the vehicle at all times. Never initiate cell phone calls while driving unless absolutely necessary. If safe to do so, pull over and park to finish phone conversations. It is recommended that you tell any callers to wait until you can pull over to talk, or use the caller ID or voice mail features and return the call later.

Defensive driving classes

Those employees who are regularly required to operate government vehicles as part of their jobs must attend defensive driving training classes offered through the ES&H training group (PS-13 Training Services). The project leaders are responsible for identifying employees who are required to take defensive driving training classes.

Post-fire hazards

After the Cerro Grande fire, the decreased water retention of the watershed will allow more runoff, thus creating more road washouts and soil on the roadway after rains.

Four-wheel-drive vehicles

Background

Four-wheel-drive vehicles are often used for access to field work areas.

If the vehicle is not a "full-time" system, it is necessary to engage the front axle whenever four-wheel-drive is needed.

Ask for a demonstration

If you need more information than given below, or would like a demonstration, ask a supervisor to show you the operation of a vehicle before taking it to the field.

Cautions

Do not operate the vehicle on hard surface roads or at sustained high speeds while in four wheel drive. When operating the vehicle in 4L, the engine speed is about twice what it would be in high range, so take care not to overspeed the engine.

Because four wheel drive provides improved traction in mud or on snow or ice-covered roads, there is a tendency to exceed safe turning or stopping speeds. Four wheel drive does not improve cornering or stopping abilities (though vehicle stability is slightly enhanced near the limits of traction). *DO NOT GO FASTER THAN ROAD CONDITIONS PERMIT.*

Operating controls

The transfer case shift lever has four positions:

Symbol	Name	Used for
2H	Rear wheel drive high range	Normal highway driving.
4H	Four wheel drive high range	More traction than two-wheel drive provides.
N	Neutral	Disengaging both driving axles.
4L	Four wheel drive low range	Maximum traction with high pulling power up to speeds of 25 mph.

Vehicles with "full time" four-wheel-drive systems have a lever with only low, neutral, and high positions.

Four-wheel-drive vehicles, continued

Locking hubs

Vehicles with manually locking front axle hubs (a selector mechanism in the center of each front wheel identifies such vehicles) *must* be engaged *before* operating the vehicle in four wheel drive (4H or 4L).

To engage the hubs, turn the selector on each axle to "Lock." If the selector does not turn freely, move the vehicle a few inches in either direction, then try to turn the selector again.

When operating in two wheel drive (2H) under normal conditions, the locking hubs should be disengaged ("free" position). This will prevent unnecessary wear to the front drive components and provide the best fuel economy.

Shifting into "four-high" drive

For high range only, to shift from two- to four-wheel-drive or back, the transfer case may be shifted while the vehicle is in motion at any speed below 55 mph while moving in a straight line. The front axle will engage faster if you momentarily release the accelerator pedal after making the shift.

Shifting during a turn may damage the axle disconnect gears.

If attempting to shift while the vehicle is stopped, it may be necessary to move the vehicle to engage or disengage the front axle.

Shifting from high or low range

To shift from high range to low range (4H to 4L) or low range to high range (4L to 4H), one must:

- completely stop the vehicle,
- shift the transmission into NEUTRAL or PARK, and
- shift the transfer case quickly into the desired range.

If difficulty is encountered, move the vehicle forward or backward in a straight line and re-try. If both levers are in neutral and gear grinding occurs, turn off the engine and re-try.

Click here to record “self-study” training to this procedure.

HAZARD CONTROL PLAN

1. The work to be performed is described in this document.
"Field Work"

2. Describe potential hazards associated with the work (use continuation page if needed).
The various facilities within the Laboratory can contain unique hazards not readily identifiable except by the controlling entities of that facility.
Falls from cliff edges: Falls can result in severe injuries.
Sun exposure: The ultraviolet radiation levels are greater at high elevation, easily causing sunburn.
Cold and heat: Exposure to temperature extremes can cause frostbite, hypothermia, hyperthermia, heat stroke, or dehydration.
Lightning during thunderstorms.
Falling trees or limbs that have been burned, due to sudden high winds when personnel are in the field.
Walking and tripping hazards from downed logs and burned out stumps. Logs may not be solid; stumps may have burned away underground, leaving a void; the ground may be more slippery.
(See continuation page.)
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3. For each hazard, list the likelihood and severity, and the resulting initial risk level (before any work controls are applied, as determined according to LIR300-00-01, section 7.2)
Unique facility hazards: improbable/ catastrophic = medium.
Falls from cliff edges: improbable / catastrophic = medium.
Sun exposure: frequent / negligible = low.
Heat and cold: occasional / moderate = low.
Lightning: remote / catastrophic = low.
Falling trees or limbs that have been burned: improbable / catastrophic = medium.
Walking and tripping hazards from downed logs: occasional / moderate = low.
Fire damaged sites around the Lab may present unexpected hazards: improbable / moderate = low.
Animals may act differently: occasional / critical = medium.
Floods: improbable / catastrophic = medium.

Overall initial risk: ☐ Minimal ☐ Low ☒ Medium ☐ High

4. Applicable Laboratory, facility, or activity operational requirements directly related to the work:
☒ None ☐ List: Work Permits required? ☒ No ☐ List:

HAZARD CONTROL PLAN, continued

5. Describe how the hazards listed above will be mitigated (e.g., safety equipment, administrative controls, etc.):

Unique facility hazards: MAQ personnel will comply with access control and work requirements of all the Laboratory's facilities.
Falls from cliff edges: Do not work within 6 feet of edges with greater than 6 foot drop. (Some stations have previously been relocated away from edges.)
Sun exposure: Use sunscreen. See document "General Field Safety All Employees".
Heat and cold: See document See "General Field Safety All Employees".

(See continuation page.)

6. Knowledge, skills, abilities, and training necessary to safely perform this work (check one or both):
   - ☒ Group-level orientation (per MAQ-032) and training to this procedure.
   - ☒ Other → See training prerequisites on procedure page 3. Any additional describe here:

7. Any wastes and/or residual materials? (check one) ☒ None ☐ List:

8. Considering the administrative and engineering controls to be used, the *residual* risk level (as determined according to LIR300-00-01, section 7.3.3) is (check one):
   ☐ Minimal ☒ Low ☐ Medium (requires approval by Division Director)

9. Emergency actions to take in event of control failures or abnormal operation (check one):
   ☐ None ☒ List:

For all injuries, provide first aid and see that injured person is taken to Occupation Medicine (only if immediate medical attention is not required) or the hospital. For any exposed, energized electrical wires, contact KSL or the appropriate authority to turn off the power. Follow all site specific emergency plans for any radiation or explosives emergencies.

Signature of preparer of this HCP: This HCP was prepared by a knowledgeable individual and reviewed in accordance with requirements in LIR 300-00-01 and LIR 300-00-02.

Preparer(s) signature(s)	Name(s) (print) /Position	Date

Signature by group leader on procedure title page signifies authorization to perform work for personnel properly trained to this procedure. This authorization will be renewed annually and documented in MAQ records. Controlled copies are considered authorized. Work will be performed to controlled copies only. This plan and procedure will be revised according to MAQ-022 and distributed according to MAQ-030.

HAZARD CONTROL PLAN, continued

Hazard Control Plan continuation page. Give item number being continued.

#2. Describe potential hazards:

Fire damaged sites around the Lab may present unexpected hazards.

Animals may act differently. The habits of large and small animals will be disrupted, their food sources drastically changed, and they will be found in new and maybe unexpected places.

Flooding: Reduced water retention in watershed areas creates potential for flash floods.

#5. Mitigation of hazards:

Lightning: The lightning threat must be continually monitored by the worker. Developing cumulonimbus clouds in the area are a definite indicator that it is time to monitor the threat more closely.

Falling trees or limbs that have been burned. Be alert, especially when the wind kicks up, which can happen very suddenly. Request JCNNM to cut down hazardous trees and limbs.
Downed logs may be hollow and unseen holes may exist from burned-out stumps and roots. Be careful when walking in burned areas.
Damaged sites around the Lab may present unexpected hazards. Be alert for these hazards and follow all facility-specific access control and work requirements.

The habits of large and small animals have been disrupted; their food sources drastically changed; and they may appear in unexpected places. Be aware of your surroundings. Visually scan your surroundings frequently.

Flooding: After the Cerro Grande fire, the watershed upstream of Lab property will not retain much precipitation. There is a potential for flash floods. Check meteorological data (on the web and by observing the clouds) for projected and current conditions and, when headed for low areas, watch and listen for signs of rain in the area and even several miles upstream. If there are rain indications, stay out of low areas. During rainy season, try to conduct field work required in low areas in early morning hours.
In case of flood: Get to high ground. Abandon vehicle if necessary. DO NOT attempt to drive across running water – less than a foot of rushing water may be sufficient to push a vehicle.

HAZARD CONTROL PLAN

1. The work to be performed is described in this document.

"Driving"

2. Describe potential hazards associated with the work (use continuation page if needed).

Motor vehicle accidents: driver could be in an accident caused by others or by own fault.
Weather conditions can greatly increase hazards.
Road hazards: construction and utility repair work, or dead trees or branches that fall and may block the roads.
Wash-outs: the decreased water retention of the watershed will allow more runoff, thus creating more road washouts and soil on the roadway after rains.

Driver distractions: driver can be distracted by things inside and outside the vehicle, such as the radio, climate controls, eating or drinking, people of opposite sex, conversations, and cell phone use.

3. For each hazard, list the likelihood and severity, and the resulting initial risk level (before any work controls are applied, as determined according to LIR300-00-01, section 7.2)

Motor vehicle accidents: improbable / catastrophic = medium
When poor weather conditions: improbable / catastrophic = medium
Road hazards: occasional / moderate = low
Wash-outs: occasional / moderate = low
Driver distractions: occasional / critical = medium

Overall initial risk: ☐ Minimal ☐ Low ☒ Medium ☐ High

4. Applicable Laboratory, facility, or activity operational requirements directly related to the work:

☐ None ☒ List: Work Permits required? ☒ No ☐ List:

AM 617 "Government and Private Vehicles" for parking rules and associated penalties for parking violations, seat belt use, and vehicle operation.
LIR 402-1320-01, "Vehicle and Pedestrian Safety."

HAZARD CONTROL PLAN, continued

5. Describe how the hazards listed above will be mitigated (e.g., safety equipment, administrative controls, etc.):

Drivers must have a valid driver's license from state of residence and be at least 18 years of age.
Do not use a motorcycle during official Laboratory business.
Drivers and passengers must wear seat belts while in any vehicle on government business. (AM 617)
Maintain a safe following distance – the Smith System Defensive Driving Program recommends a four-second following distance. However, safe following distance will be modified by many parameters such as road conditions (snow, rain, ice, etc.), speed, visibility, traffic conditions, etc.
Do not exceed posted speed limits. Reduce your driving speed to adjust for driving conditions such as traffic density, visibility, traction, etc.
Do not drive if you are overly fatigued, dizzy, or on medication that may impair driving ability.
---- See continuation page ----

6. Knowledge, skills, abilities, and training necessary to safely perform this work (check one or both):
- ☒ Group-level orientation (per MAQ-032) and training to this procedure.
- ☒ Other → See training prerequisites on procedure page 3. Any additional describe here:

7. Any wastes and/or residual materials? (check one) ☒ None ☐ List:

8. Considering the administrative and engineering controls to be used, the *residual* risk level (as determined according to LIR300-00-01, section 7.3.3) is (check one):
☐ Minimal ☒ Low ☐ Medium (requires approval by Division Director)

9. Emergency actions to take in event of control failures or abnormal operation (check one):
☐ None ☒ List:

Provide first aid. Call 911 for emergency help.
Report accidents to supervisor.
Report accidents to EM&R at 667-6211.
Complete GSA Standard Form 91 and submit to group leader.

Signature of preparer of this HCP: This HCP was prepared by a knowledgeable individual and reviewed in accordance with requirements in LIR 300-00-01 and LIR 300-00-02.

_____	_____	_____
Preparer(s) signature(s)	Name(s) (print) /Position	Date

Signature by group leader on procedure title page signifies authorization to perform work for personnel properly trained to this procedure. This authorization will be renewed annually and documented in MAQ records. Controlled copies are considered authorized. Work will be performed to controlled copies only. This plan and procedure will be revised according to MAQ-022 and distributed according to MAQ-030.

HAZARD CONTROL PLAN, continued

Hazard Control Plan continuation page. Give item number being continued.

Item 5 continued.

Use your mirrors to evaluate the traffic around you.

Use your turn signals to warn other drivers of your intentions.

Attend defensive driving training classes offered through the ES&H Training Group (PS-13) if regularly required to operate government vehicles as part of job . The project leaders are responsible for identifying employees who are required to take defensive driving training classes.

Emergency vehicles: Be ready for emergency vehicles to appear at any time.

Repair crews: Be ready for repair crews at any location.

Road hazards: Watch the road; be ready for road hazards at any time.

Wash-outs: Watch the road; be ready for road hazards at any time.

Driver distractions: Be aware of the ease with which you can be distracted by the radio, ventilation controls, and other people. Keep your attention outside the vehicle at all times. Never initiate cell phone calls while driving unless absolutely necessary. If safe to do so, pull over and park to finish phone conversations. It is recommended that you tell any callers to hang on until you can pull over to talk.